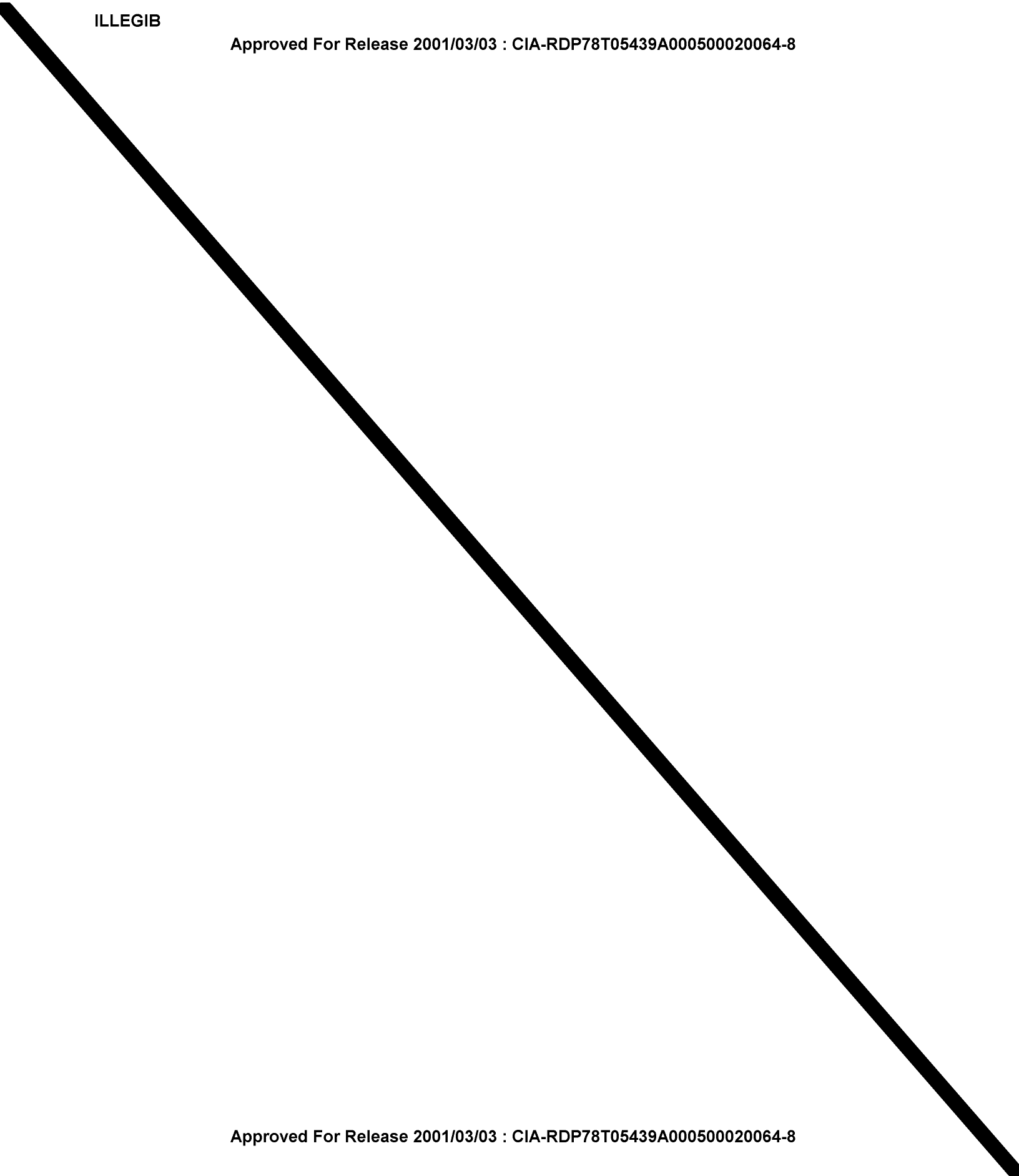

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TCS #2640/65
PID/ABCB 90/65
26 April 1965
Copy #____

MEMORANDUM FOR: Chief, Nuclear Energy Division, OSI

25X1A ATTENTION: [redacted] SMB/NED/OSI

THROUGH: Chief, Requirements Branch, Reconnaissance Group, CCS

FROM: Chief, Photographic Intelligence Division, CIA

SUBJECT: Measurement Data of Ice-Free Areas at Zaozernyy/Dodonovo AE Complex, USSR

REFERENCES: Requirement No. C-SI5-82,167
CIA Project No. 30097-5
Memorandums PID/ABCB 36/65, 11 Feb 65 -
PID/ABCB 52/65, 4 March 65

1. Measurement of ice-free areas resulting from water discharge points at the Zaozernyy and Dodonovo AE Complexes were requested in the referenced requirement.

a. Zaozernyy Complex

1) Ice-free areas on the Kan River were measured by the NPIC Technical Intelligence Division as follows:

25X1D

25X9

Ice-Free Areas	[redacted]		
Effluent [redacted]	None	8.6	acres
Effluent from Thermal Power Plant to dam	318* acres	39	(937) acres
Ice-Free Limit on Kan River from Dam		898	

(*) Separate measurements not computed on [redacted] 25X1D

25X9

Refrozen Areas			
Effluent [redacted]	None	136	acres
Thin-ice Limit on Kan River from Dam	67** acres	21	acres

(**) Estimated since photogrammetrist measured ice from bank to bank. Slightly less than half of this area (138 acres) was deemed as being thin-ice.

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25X1D
25X1D
25X1D

2) Although photography from [redacted] was not measured separately by NPIC/TID, by subtracting the area refrozen since [redacted] one can estimate that the ice-free area downstream from the dam was approximately 693 acres.

3) Preliminary measurements made by the project analyst (Memo PID/ABCB 36/65, 11 Feb 65) should now be disregarded. These measurements of ice-free areas differed by being
25X1D approximately 21% low on [redacted]
25X1D [redacted] This difference was due partly to the lateral decrease in scale with obliquity inherent in the KH-4 system, and partly to selecting, in this instance, a low scale constant to apply to planimeteric data. By increasing the scale by 180 feet per inch, an alternate selection, the amount of error would have been reduced to a more acceptable 11% difference.

25X1D 4) The ice-free area reported for [redacted] (Memo PID/ABCB 72/64, 15 April 64) is obviously too low to correlate with the revised data, and NPIC/TID measurements should be requested if this coverage is deemed important for further analysis.

b. Dodonovo Complex

1) Ice-free areas on the Yenisey River were measured by the NPIC Technical Division as follows:

Ice-Free Areas	[redacted]	25X1D
Downstream from Krasnoyarsk TETS	143 acres	183 acres
Upstream Transition Zone	121 "	81 "
Upstream from Dodonovo AE Complex	1934 "	1665 "
Downstream from Dodonovo AE Complex	2260* "	2787 "
Downstream Transition Zone	63 acres	670 acres
Total Area	4521 acres	5386 acres

(*) Measured to edge of cloud cover; actual total slightly higher.

25X1D 2) The trend of a lesser ice-free area upstream
25X1D and a greater ice-free area downstream from Dodonovo on [redacted] was accentuated by the new figures.

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3) Preliminary measurements made by the project analyst (Memo PID/ABCB 52/65, 4 Mar 65) compared favorably. The total acreage previously submitted were 7% and 6% lower [redacted] respectively. This difference was within the limit of accuracy given by NPIC/TID computations that accounted for the lateral change in scale.

25X1D

2. All measurements in this final memorandum have been made by the NPIC Technical Intelligence Division [redacted] and are considered to be accurate within ± 10%.

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3. The photo analyst on this project was [redacted] who may be contacted on extension 2317 should you have further questions.

25X1A 25X1A

4. This memorandum completes the referenced requirement.

25X1A [redacted]

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